

I CLAIM:

1. A method of controlling the engagement of the clutches and the synchronizers of a dual clutch transmission in the event of a clutch or synchronizer fault, said method includes the steps of:

determining which clutch is faulted when a clutch-on fault is detected;  
commanding an interruption of engine torque to the faulted clutch;  
commanding neutralization of all synchronizers of the same axis shaft as the faulted clutch;  
determining which synchronizer is faulted if an actuator-on fault has is detected; and  
preventing the further actuation of the other synchronizers on the same axis shaft as the faulted actuator.

2. A method as set forth in claim 1 wherein the method further includes the steps of:  
continuously re-determining if a clutch-on fault has been detected; and  
continuously re-determining if an actuator-on fault has been detected.

3. A method as set forth in claim 2 wherein the method step of continuously re-determining if a clutch-on fault has been detected further includes the step of referring to a higher level control method to sense if the higher level control method has determined if a clutch-on fault has occurred.

4. A method as set forth in claim 1 wherein the method step of determining which clutch is faulted when a clutch-on fault is detected further includes the step of referring to a higher level control method to sense which clutch the higher level control method has determined to be faulted.

5. A method as set forth in claim 2 wherein the method step of continuously re-determining if a clutch-on fault has been detected further includes the step of monitoring reference data provided by engine and transmission sensors and comparing the data to a look-up table.

6. A method as set forth in claim 1 wherein the method step of determining which clutch is faulted when a clutch-on fault is detected further includes the step of monitoring reference data provided by engine and transmission sensors and comparing the data to a look-up table.

7. A method as set forth in claim 2 wherein the method step of continuously re-determining if an actuator-on fault has been detected further includes the step of referring to a higher level control method to sense if the higher level control method has determined if an actuator-on fault has occurred.

8. A method as set forth in claim 2 wherein the method step of continuously re-determining if an actuator-on fault has been detected further includes the steps of monitoring reference data provided by engine and transmission sensors and comparing the data to a look-up table.

9. A method as set forth in claim 1 wherein the step of determining which clutch is faulted when a clutch-on fault is detected further includes the steps of:

determining if an even axis clutch-on fault has been detected; and

determining if an odd axis clutch-on fault had been detected.

10. A method as set forth in claim 9 wherein the step of commanding an interruption of engine torque to the faulted clutch further includes the steps of:

commanding an interruption of engine torque to the even axis clutch if the even axis clutch is faulted; and

commanding an interruption of engine torque to the odd axis clutch if the odd axis clutch is faulted.

11. A method as set forth in claim 1 wherein the step of commanding neutralization of all synchronizers of the same axis shaft as the faulted clutch further includes the steps of:

commanding neutralization of all synchronizers of the even axis shaft when the even axis clutch is the faulted clutch; and

commanding neutralization of all synchronizers of the odd axis shaft when the odd axis clutch is the faulted clutch.

12. A method as set forth in claim 1 wherein the step of determining which synchronizer is faulted if an actuator-on fault has is detected further includes the steps of:

determining if an even axis actuator-on fault has been detected; and

determining if an odd axis actuator-on fault had been detected.

13. A method as set forth in claim 1 wherein the step of preventing the further actuation of the other synchronizers on the same axis shaft as the faulted actuator further includes the steps of:

- preventing the further actuation of the other even axis synchronizers when an even axis actuator has faulted; and
- preventing the further actuation of the other odd axis synchronizers when an odd axis actuator has faulted.